**Sample Assignment—Mechanical Engineering Course**

Good designers always evaluate what they do and document their successes and failures. Keeping a running log of design effort enables designers or their successors to follow the thought process. Good designers also keep meticulous records of what the competition is doing and, within legal limits, steal and improve upon their ideas. The purpose of this assignment is for you to reflect on your card platform, to document its design, and to record solutions you saw from other groups. Note that this reflection component of the platform project is an example of why what you do in this course is different from similar projects you may have done in middle or high school. To be successful in this assignment you must pay careful attention not only to your own design, but to other platform solutions. We suggest that during class and section, circulate around the room and record what you see in your sketchbook using annotated drawings.

**Description and Deliverables**

The assignment is done individually. The deliverable is a one-page (no more, no less) writeup which contains the following:

1. Draw a horizontal line across the paper, about 2/3 of the way down. All text goes above the line, drawings go below the line.
2. On the bottom left, sketch the platform you designed by yourself and made the manufacturing instructions for. Use any sketch method that makes the design clear. On the bottom right sketch the platform you wish you had designed, based upon what you observed in lecture and section. Title each sketch and annotate where appropriate.
3. Above the line, write a summary of the design process you used to create the tower you brought to section, and the process your section group went through in selecting a design to turn over to the manufacturing team. In the design your section team selected, what worked well and what did not? If the design ended up not meeting one of the constraints, why? Perhaps compare your design to the best one in the section. Be detailed, specific and scientific in your comparisons. Comment on the process of working in a group. Would your final platform have used fewer cards if you had been all on your own for the whole project?

Use a word processor. To fit all the text into the top 2/3 of the paper, you may use down to 10 point font and one inch left and right margins, no smaller. Center the title at the top. Add your name and the date in the top right corner.

Make sure what you turn in does not contain errors in grammar or punctuation. Although the content of this paper deals with engineering, it is important that the writing be clear and correct. You will find that you will often have to work with non-technical people (i.e. marketing or management) who may be turned off by a poorly presented document, even if it is technically excellent.

Durfee, Will. Reflecting on your Index Card Platform, Mechanical Engineering 2011: Introduction to Engineering, Aug. 2000. University of Minnesota. 12 Feb. 2003. <http://www.me.umn.edu/courses/me2011/ assign/a05.html>.

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| |  | | --- | | **Sample Assignment-Psychology**  **Descriptive Statistics Media Report** | |  | | **Goal:**  This media report is to demonstrate your ability to understand and criticize the use of descriptive statistics in the media.  **Requirements:** A 1-2-page written report (worth 15 points) is due September 26. This report should summarize the news article or advertisement and then present your analysis and criticism. Your criticism may be positive (the news article used just the right statistics) or negative. In either case, you must defend your criticism. That is, why are the statistics appropriate or inappropriate? If other statistics should be reported, why are they necessary? Be sure to make your criticism statistical, not on the basis of general knowledge, writing skill, politics, etc. That is, based on your statistical knowledge and the textbook, what additional information should be included?  The article you criticize must present statistical information (as defined in Learning from Data) and not just parameters. Many news articles inappropriately refer to any numbers as “statistics.” For example, suppose a news article reported that the federal government’s budget for education is $5 billion. This is not statistical information (in the sense required for our course). This is a single number that does not have anything to do with a population of scores. On the other hand, suppose the article reported that the average state budget is $5 billion. This number is statistical information because it is the average of a population of scores (the budgets for the 50 individual states). Suppose that an article reported that a person was just discovered who celebrated her 137th birthday, making her the oldest person in the world. Is that statistical information? Suppose the article reported that that life expectancy in Wisconsin is greater than life expectancy in Alabama. Is that statistical information?  Include with your report a copy of the article being criticized or the details (date, time, broadcaster) if in the broadcast media. | |

Source: University of Wisconsin Writing Center: <http://mendota.english.wisc.edu/~WAC/page.jsp?id=172&c_type=category&c_id=15>

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| |  | | --- | | **Sample Assignment-Intro to Astronomy****Guidelines:** The Reflective Essays are short papers which discuss the interaction of humans with their environment on Earth. They should be 400 to 600 words in length (about two pages). You should spend about five hours on each one, two or three hours researching and then two or three hours writing. What you write must be consistent with current scientific thinking and cite sources appropriately. On matters of opinion, you are free and encouraged to take any position you choose.  You must list your sources in a references section; this should be complete enough that someone else could check all the facts that you state. You may use information from the lectures and labs, but you will also want to do some research either in the library or on the web to get enough information to write your essay. Specifically, you are required to cite at least three references for each paper, and top grades will be assigned only to essays that appropriately make use of and cite multiple references.  For each essay, you must follow closely the assigned questions, unless you have proposed an alternative format to your lab instructor and received explicit permission to use that format. For example, you could propose to provide the same scientific information by writing a fictional story about an asteroid hitting the Earth, instead of simply answering the assigned questions. The decision about what alternative formats are acceptable is up to your lab instructor.  We suggest, in the strongest possible terms, that you have a friend read a draft copy of your essay and give you feedback in order to make revisions before you submit your final and only essay. First drafts are unlikely to satisfactorily meet the grading criteria, and top grades will only be given if the essay is free of spelling and grammatical errors.  Topics : 1. Due in your lab section the week of Feb 17—Cosmic Impacts on Earth as a Threat to Civilization   In this essay, you will explore the question of how much, if any, economic effort should be devoted to the pre-detection of possible Earth impacts as well as development and implementation of collision prevention strategies. Your task is to present a thoughtful, well researched argument for a point of view. In order to address this issue in a compelling way, structure your essay according to the following outline:  A. Write a short introduction stating your “thesis“ (the point you will argue), and then label each of the following sections appropriately.  B. In one paragraph, summarize the key information we have about impacts between objects in the early solar system, including their origins and consequences.  C. Summarize our current knowledge regarding the threat of impacts on the Earth now. Be sure to include how the probability of an impact depends on the size of the impacting object and how the expected level of destruction depends on that size, as well.  D. Briefly describe serious efforts that are currently either underway or proposed to protect Earth from impact hazards.  E. Propose and provide a rationale for how much money the U.S. should spend yearly on impact prevention efforts. To establish its priority, your argument must include a comparison with at least one other expenditure on a national level, and must be supported by the information you have presented above.  Some suggested references:  National Optical Astronomy Observatory Press Release, February 2003  Astronomy Magazine, February 2002, "Target Earth". Australian Spaceguard Survey Impacts and Defense Strategies (notes from an interesting organization called P.E.R.M.A.N.E.N.T.) NASA Asteroid and Comet Summary Site (good list of current and planned missions) Near Earth Asteroid Tracking (see FAQs for overview, plus other good links) Near Earth Object Report (Task Force findings and recommendations for UK  **Source**  Hallman, Eric. Reflective Essays, Astronomy 1001: Exploring the Universe. Astronomy Department, University of Minnesota. 23 June 2003. <http://www.astro.umn.edu/intro/ essay/essaysS03.html>. | |
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